

# Abstract

Diabetes Care. 2005 Jan;28(1):89-94.

## **Acetyl-L-carnitine improves pain, nerve regeneration, and vibratory perception in patients with chronic diabetic neuropathy: an analysis of two randomized placebo-controlled trials.**

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**OBJECTIVE:** We evaluated frozen databases from two 52-week randomized placebo-controlled clinical diabetic neuropathy trials testing two doses of acetyl-L-carnitine (ALC): 500 and 1,000 mg/day t.i.d.

**RESEARCH DESIGN AND METHODS:** Intention-to-treat patients amounted to 1,257 or 93% of enrolled patients. Efficacy end points were sural nerve morphometry, nerve conduction velocities, vibration perception thresholds, clinical symptom scores, and a visual analogue scale for most bothersome symptom, most notably pain. The two studies were evaluated separately and combined.

**RESULTS:** Data showed significant improvements in sural nerve fiber numbers and regenerating nerve fiber clusters. Nerve conduction velocities and amplitudes did not improve, whereas vibration perception improved in both studies. Pain as the most bothersome symptom showed significant improvement in one study and in the combined cohort taking 1,000 mg ALC.

**CONCLUSIONS:** These studies demonstrate that ALC treatment is efficacious in alleviating symptoms, particularly pain, and improves nerve fiber regeneration and vibration perception in patients with established diabetic neuropathy.

PMID: 15616239

